

REMOVING THE OBSTACLES



Wildlife managers and landowners are using FWP's statewide study of Montana's pronghorn movements to help the prairie grazers travel between critical habitats.

BY ANDREW MCKEAN

While western Montana can lay claim to peak-dwelling bighorn sheep and mountain goats, the state's grassland regions take pride in their own iconic big game superstar: the pronghorn. These elegant speedsters, commonly known as "antelope" or "speed goats," live exclusively in short- and mixed-grass prairie from southern Alberta to central Mexico. Visitors to Montana's vast grassland and sagebrush regions—tourists and residents alike—marvel as they watch pronghorn race across the prairie, emblems of the vast, open American West.

Sadly, some herds in Montana are struggling, and no one knows exactly why.

One factor may be obstacles like roads and fencing. Pronghorn are poor jumpers. They can be blocked by or get hung up on fences easily surmounted by deer. If they can't find a spot to squeeze under a fence, pronghorn can't get past.

Barriers can prevent pronghorn from reaching critical habitat so they can survive heavy winter storms; fencing and other obstacles also deplete energy reserves of pronghorn as they search for areas to cross.

Biologists with Montana Fish, Wildlife & Parks are studying what impediments block pronghorn movement and where those barriers are. An extensive five-year research project that tracks pronghorn movement and habitat preferences in eight distinct herds across the state has ended its data-collection phase. Wildlife scientists are now analyzing the information to learn why some populations have dwindled and others haven't recovered from winterkill or disease.



NOWHERE TO GO Pronghorn expend valuable energy in late winter trying to bypass a woven-wire fence used to contain sheep. The prairie speedsters never adapted to leap over obstacles and are often stymied by fences as they try to reach vital habitat. PHOTO BY ERIK PETERSEN

The unprecedented project, in which over 700 pronghorn from Malta to Dillon were captured and fitted with GPS tracking collars, has elevated the visibility of antelope among ranchers, land managers, and wildlife watchers, and confirmed that pronghorns are simultaneously Montana's hardest and most fragile big game species.

This focus on Montana's pronghorns is long overdue, says Justin Gude, chief of FWP's Research Bureau. "Compared to other big game species, we know very little about pronghorn," he says. "For whatever reason, they have just not been a priority for research. But then populations as well as hunter opportunity dropped substantially across eastern Montana in the past 15 years—especially after the severe winter of 2010-11—and they still haven't fully recovered in the central part of the state a decade later. Our biologists weren't sure why, and they wanted more solid information as they develop management recommendations including hunting harvest quotas in those areas."

GROWING INTEREST

The study coincides with growing public interest in where wildlife species travel. Over the past decade, scientists across the country have used increasingly smaller and lighter satellite-linked collars to map the remarkable movements of critters, from wolverines in Glacier National Park to bats in Texas. GPS location data allows biologists and landscape ecologists to build detailed maps of seasonal migrations and, just as importantly, identify impediments such as fences, highways, railroads, and rural subdivisions.

The spotlight on wildlife migration grew even brighter in 2018 with Interior Department Secretarial Order 3362, which elevated tracking big game migrations to a national priority. SO3362 provides state wildlife agencies with additional funding for research into identifying obstacles and other funds to ease big game movement and improve habitat.

"With the recent, widespread interest in big game migration, and given that pronghorn need to move a lot and are affected by barriers

Andrew McKean, the hunting editor of Outdoor Life, is a frequent and longtime contributor to Montana Outdoors.



REMOTE PHOTOGRAPHY Thomas Sutton, FWP wildlife biologist in Malta, replaces batteries and memory cards on trail cameras south of Malta this past February. The cameras document pronghorn trying to get through fences along historical migration routes or new journeys to escape deep winter snow. Below: A shot from another trail camera showing pronghorn able to slip under a four-wire fence.



more than deer and elk, we had a renewed opportunity to initiate this project," says Gude.

The first pronghorn in Montana's study—the Montana Pronghorn Movement and Population Ecology Project—were collared in 2019. The eight Montana project areas (see map on page 34) were selected for their geographic variability, but also because

local landowners and public land managers wanted pronghorn-friendly solutions.

Gude says there's significant federal funding available to assist with remediation projects. "Replacing woven wire in key sections with horizontal-strand wire fencing is by far the most beneficial thing that can be done for pronghorn movement, based on our analysis



"Replacing woven wire with strand wire fencing is by far the most beneficial thing that can be done for pronghorn movement, based on our analysis of the movement data."

of the movement data," says Gude. Other fixes include replacing bottom strands of barbed wire with smooth strands 16 inches off the ground, raising barbed bottom strands to 18 inches up, clipping bottom wires to the ones above them, completely removing unnecessary fencing, and improving wildlife crossings over or under highways.

GPS data maps showing movements of the 700 pronghorn are provided to FWP staff, the Bureau of Land Management, ranchers in the study areas, conservation nonprofits, and interested members of the public. "We're sharing the maps almost in real time," says Dr. Kelly Proffitt, an FWP senior wildlife research biologist who leads the study. "People open their emails and immediately begin clicking around and zooming in and seeing precisely where fences or other obstacles are creating passage problems for pronghorn,"



WHERE DO YOU GO? Above: One of the 700-plus pronghorn fitted with a GPS collar so that scientists can track their movements. Top: A herd races through sagebrush in search of favorable habitat.

CLOCKWISE FROM TOP: LEFT: ANDREW MCKEAN; DAWN WILSON; CRAIG MILLER; MONTANA FWP

Proffitt says. “And then they use that data as quickly as possible to make the landscape more permeable.”

Martin Townsend, conservation coordinator for the Malta-based Ranchers Stewardship Alliance, says partner landowners in north-central Montana have modified roughly 150 miles of fencing over the past few years using federal, state, and conservation nonprofit grants. More remediation is in store thanks to \$6.4 million in new federal funds for Montana big game movement and habitat projects through local Natural Resources and Conservation Service offices. “None of this could have happened without the FWP study,” Townsend says. “The maps have been invaluable in attracting funding because they show so clearly the problems and how funding can be used to solve them.”

INTERACTIVE MAPS

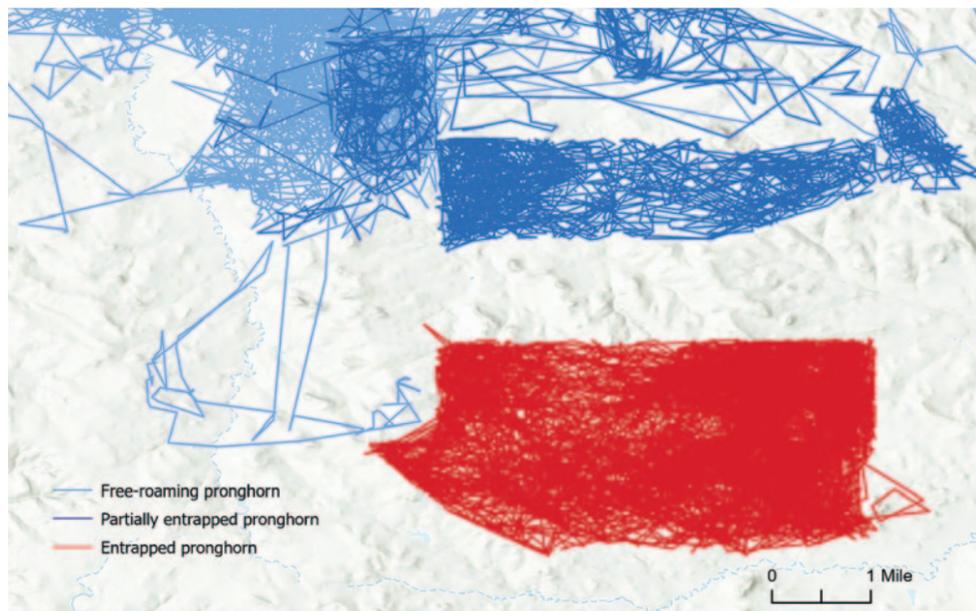
Gude says one early conclusion of the five-year research project is that Montana’s antelope don’t routinely make long migrations. “All the animals move substantially, just not necessarily in seasonal migrations along distinct corridors,” he says. “The exception is that the Madison and Big Hole herds do migrate a long way every year. And we’ve documented some unexpected movements.”

For example, one doe captured on winter range in the Madison Valley migrated to summer range in the Centennial Valley, Gude says, “and then the next year she wintered over by Clark Canyon Reservoir. So it appears she switched winter ranges for some reason.”

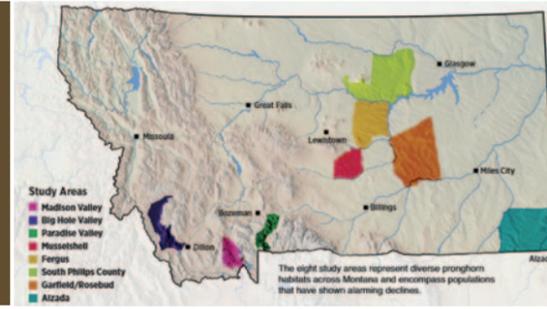
Gude adds that, because pronghorn tend to wander, “it’s relatively easy to identify movement barriers. And, in many cases, you can see the outline of pastures in the GPS plots because the pasture fences are keeping pronghorn either in or out of those areas.”

Montana’s pronghorn project finished collecting data this past June. Over the next year, FWP biologists will analyze the information and then use results to craft herd-specific management strategies that help struggling pronghorn populations recover.

Proffitt says the research project extends beyond illustrating where pronghorn cross specific landscapes to understanding how they make a living off the land more generally, including habitat preferences and seasonal forage selection.



MAPPING CONSTRAINT Above: The GPS locations of three collared pronghorn in a study area show how two animals were contained within fencing until they found a way out. Trapped within fenced land, the prairie animals can spend days searching for an exit. Right: The eight study areas represent diverse pronghorn habitats across Montana and encompass populations that have shown alarming declines.



“We’re trying to identify factors that are limiting growth of some of our central Montana populations,” she says. “Is it fawn survival? Adult female survival rates? The reality is that we don’t know, but we’re looking at fine-scale habitat selection and diet analysis hoping to find out what they are eating and how that might affect survival and reproductive success.”

Precise location data may help pinpoint certain types of vegetation that pronghorn require during different times of the year. If they don’t have access to that food, either because of land conversion or movement barriers, management prescriptions might include adjusting harvest quotas or hunting district boundaries, or finding ways to reconnect pronghorn with critical forage.

“One thing we know about pronghorn is that, physiologically, the cost of reproduction for a female pronghorn is a lot higher than for a female elk,” says Proffitt. “Female

“We’re sharing the maps almost in real time. People can see precisely where fences or other obstacles are creating passage problems for pronghorn. And then they use that data as quickly as possible to make the landscape more permeable.”

pronghorn frequently have twins, and those two offspring can be up to 30 percent of her body mass. So that late gestation period in April and May is, energetically, super-demanding, and her ability to cue on really high-quality and abundant forage is critical during that time of year.”



CLOCKWISE FROM TOP LEFT: JESSE DEVOE/MONTANA FWP; PAUL N. QUENEAU; NICK FLUCCI

That’s also when snowpack is melting and range is starting to green up, Proffitt adds, “so one of the things we’re interested in is how the timing of green-up coincides with late-gestation and early lactation periods. If green-up comes late some years, how do female pronghorn respond? Do areas with high fence densities limit their ability to access critical vegetation during that late-gestation period?”

Wildlife managers will also use the new data when creating population models. The computer-generated simulations show how a population’s age and sex composition change when scientists plug in various factors such as a severe winter, increased or decreased pronghorn doe harvest, or prolonged drought.

“Montana can’t manage its pronghorn populations effectively without strong scientific data,” Gude says. “Otherwise it’s just a guessing game. This study is helping us remove as much of the guesswork from management decisions as we possibly can.”



MOVING RIGHT ALONG Top: Partially electrified woven-wire fencing on the CSKT Bison Range on the Flathead Reservation is elevated to allow passage of pronghorn and other wildlife while containing buffalo. Above: A buck, doe, and fawn run freely across central Montana rangeland.